

*Note: This is draft version 4 of the RAP. Revisions from version 3 are indicated in **BOLD** and strikeout.*

REGULATORY ALTERNATIVES PAPER

Prepared by:

The Incinerator Work Group

Submitted to:

ICCR Coordinating Committee
Research Triangle Park, North Carolina

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PREFACE

This Regulatory Alternatives Paper (RAP) has been prepared by the Incinerator Work Group (IWG) for presentation to the ICCR Coordinating Committee (CC) **at its September 16-17, 1998, meeting in Research Triangle Park, North Carolina**. While it would be unrealistic to expect every IWG member to agree with every detail in a complex document such as this, the IWG concurs with the overall content and focus of the RAP and has reached consensus on submitting it to the CC **as a final report**. ~~The EPA has requested that the CC forward this draft version of the RAP, with any comments or additional recommendations the CC would like to add, to EPA at the July CC meeting. EPA will begin drafting its summary of regulatory alternatives in August, 1998. As a result, forwarding this draft of the RAP to EPA at the July meeting will provide EPA an opportunity to give full consideration to the information in the RAP in drafting its summary document. The IWG has discussed this request from EPA and, having reached closure, recommends that the CC forward this draft of the RAP to EPA.~~ Note that the Boiler Work Group has collaborated with the IWG on some sections of the RAP and has provided preliminary information related to certain source categories (i.e., potential Section 129 solid mixed feed boilers and liquid mixed feed boilers). ~~The Process Heater Work Group may provide source category information in future drafts.~~

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TABLE OF CONTENTS

	<u>Page</u>
Preface	i
Table of Contents	ii
1.0 Introduction	1
2.0 Background	2
3.0 Applicability	5
4.0 Subcategory Characterizations and Regulatory Alternatives	6
5.0 Pollution Prevention	6
6.0 Statutes and Executive Orders	9
7.0 Issues and Needs	11
Attachment A Example Applicability Language and Definitions	22
Attachment B Draft Subcategory Definition Sheets	27
 <u>Figures and Tables</u>	
Figure 1 Illustration of ICCR Organization	13
Figure 2 Illustration of Steps Leading to the RAP and Beyond	14
Table 1 Incinerator Work Group Subteams	15
Table 2 Summary of Preliminary Subcategory Definitions	16

REGULATORY ALTERNATIVES PAPER

1.0 INTRODUCTION

The Incinerator Work Group (IWG) of the Industrial Combustion Coordinated Rulemaking (ICCR) has prepared this draft Regulatory Alternatives Paper (RAP) for review by the ICCR Coordinating Committee (CC). The IWG recommends that the CC adopt this RAP as Committee recommendations to EPA for consideration in preparing a summary of regulatory alternatives, which the Agency must submit to litigants pursuant to a consent decree involving industrial and commercial waste incinerators. EPA's summary of regulatory alternatives is due to the litigants on November 16, 1998.

The RAP is an intermediate product in the regulatory development process. It contains recommendations regarding categories of *nonhazardous solid waste incinerators* considered for regulation under section 129 of the *Clean Air Act*, the pollutants to be regulated, and potential control alternatives for each incinerator subcategory. Additionally, the RAP contains other relevant subcategory-specific information such as subcategory population statistics, combustion device descriptions, the status of data collection and analysis, and issues and needs. The information and recommendations presented in the RAP are preliminary and will continue to evolve throughout the regulatory development process.

The ICCR CC is chartered under the Federal Advisory Committee Act (FACA). As such, the work of the CC and the ICCR's seven work groups is conducted by *stakeholders* representing industries, environmental groups, State and local agencies, and other interested parties. The ICCR's five source work groups address incinerators, boilers, process heaters, ~~stationary~~ gas turbines, and internal combustion engines. These source work groups are supported by two additional work groups responsible for testing/monitoring and economics. All seven work groups and their organizational relationship to the CC are illustrated in Figure 1. Although the IWG has taken the lead in preparing this RAP, the Boiler Work Group (BWG) has collaborated with the IWG on some sections of the RAP and has provided preliminary information related to certain source categories. ~~The Process Heater Work Group (PHWG) may provide source category information in the future.~~ **Because the ICCR's FACA charter expires in September 1998, the RAP will be the IWG's final report.**

This paper is organized into sections on background, applicability, subcategory characterizations and regulatory alternatives, pollution prevention, statutes and executive orders, and issues and needs. Additionally, draft applicability language and preliminary definition sheets for the emission source subcategories identified by the IWG and BWG to date are attached.¹

¹Depending on the final definition of solid waste, it is possible that some process heaters could be subject to Section 129. However, because the applicability of Section 129 to process heaters is still unclear and because only a few such units could ultimately fall under Section 129,

2.0 BACKGROUND

One mission of the ICCR source work groups is to develop information for consideration by the CC in developing recommendations to EPA regarding the development of nonhazardous solid waste incineration regulations under Section 129 of the *Clean Air Act*. In this effort, the IWG has been following an overall strategy that is illustrated in Figure 2, and the BWG has followed a similar strategy. Beginning with a well defined focus, schedule, and approach, the IWG analyzed the ICCR databases, developed **scoping** recommendations for new and existing combustion units within an overall regulatory framework, and identified emission source subcategories, **and prepared floor and control option recommendations**. Additionally, efforts are progressing to establish floor levels of control and control options. With input from the BWG, and considering the need to address Section 129 and other pollutants, the IWG prepared the RAP. Subsequent work will involve recommendations for an emission test program, refining our subcategory definitions, and providing cost, emission reduction, and other inputs into the economic and environmental impact analysis process. Ultimately, the IWG will recommend control options and emission limits, including pollution prevention options, operator training and certification, and new unit siting. **(The steps beyond the RAP in Figure 2 will be addressed by EPA after the FACA's expiration.)**

Much of the IWG's work has been conducted by subteams composed of work group members having similar interests. The IWG's four subteams and source category responsibilities are listed in Table 1. The subteams initially concentrated on reviewing and updating the ICCR databases for incineration units. As part of this effort, the subteams confirmed that units are correctly listed as incinerators in the databases. Additionally, erroneous information such as incorrectly listed unit designs, operating parameters, and waste types was corrected, and units no longer in operation were identified. More recently, the subteams have developed the recommendations for subcategory definitions, control level floors, and control options that are presented in this RAP. The standard procedure has been for the subteams' work to be considered, commented on, and approved by the entire IWG before being forwarded as recommendations to the CC.

Because EPA has indicated that boilers and process heaters that combust nonhazardous solid waste should be considered "solid waste incineration units" under Section 129, the BWG has provided preliminary placeholder subcategories, and appropriate Process Heater Work Group (PHWG) subcategories may be added in future drafts. However, the number and description of BWG and PHWG subcategories that may ultimately be addressed under Section 129 remains uncertain at this time, in part because the Agency has yet to adopt a definition of nonhazardous

process heaters are not covered in this document.

solid waste for use in Section 129 regulations.² This definition of nonhazardous solid waste is crucial to determining whether certain combustion units will ultimately be considered nonhazardous solid waste incineration units subject to Section 129 or combustion units subject to Section 112. The definition of nonhazardous solid waste is not as crucial to the IWG and this RAP because all nonhazardous waste incinerators are considered by EPA to be subject to Section 129 regardless of the materials combusted. It should be noted that incinerators, boilers, and process heaters have distinctively different functions. Whereas the primary purpose of an incinerator is to reduce the volume of waste, the primary purpose of a boiler is to produce useful steam or hot water, and process heaters are designed to transfer useful heat to an industrial or commercial process.

The IWG has identified the following five nonhazardous solid waste incineration subcategories for possible regulation under Section 129:

- # **Miscellaneous Industrial and Commercial Waste Incinerators**
- # **Wood and wood waste incinerators** -- *including separate groupings for milled solid and engineered wood; harvested wood and agricultural waste; and construction, demolition, and treated wood wastes; and possibly finishing wastes.*
- # **Pathological waste incinerators and crematories** -- *including separate groupings based on feed rate for poultry farms; human crematories; and hospital, animal control, and research facilities.*
- # **Drum reclaimer furnaces**
- # **Parts reclaimer burnoff units**

Additionally the BWG, in cooperation with the IWG, has identified the following placeholder subcategories, subject to further analysis by the BWG and a final definition of nonhazardous solid waste:

- # **Potential Section 129 solid mixed feed boilers**
- # **Potential Section 129 liquid mixed feed boilers**

Section 129 addresses four categories of incineration units -- municipal solid waste

²At its November 18-19, 1997, meeting, the CC forwarded to EPA recommendations and accompanying stakeholder position papers on the definition of nonhazardous solid waste. These documents are attached to the November 18-19 meeting minutes on the ICCR Internet web page at <http://www.epa.gov/ttn/iccr/cdira.html>. On June 5, 1998, EPA staff issued a draft definition of nonhazardous solid waste, for purposes of the ICCR, as guidance to the work groups.

(MSW) combustors, hospital and medical infectious waste (HMIW) incinerators, industrial and commercial waste incinerators (ICWI), and other solid waste incinerators (OSWI). Rules addressing the first two categories have been promulgated. However, rule applicability excludes units combusting less than 250 40 tons per day (tpd) of municipal solid waste (determined by weight on a quarterly average basis), larger ~~such~~ units combusting less than 30% municipal solid waste, and units burning less than 10% hospital and medical infectious wastes. EPA has decided to address the <250 tpd municipal solid waste units outside of the ICCR. The <30% municipal solid waste and <10% hospital and medical infectious waste incineration units are included in the ICCR and will be addressed in one of the subcategories ultimately established for the Section 129 rulemaking.

The IWG recommends ~~At this time the IWG envisions recommending~~ a separate set of regulatory requirements (e.g., emission limits) for each of the above subcategories and groupings. However, **EPA may want to consider** a further subdividing or combining of these subcategories and groupings ~~may occur~~ as additional information is received and analyzed. Additionally, **as new information is received**, it may be necessary to create a *miscellaneous* or *other* category to ensure that any units not covered by the above subcategories are addressed.

EPA has indicated that Section 129 addresses incinerator units and other combustor units burning nonhazardous solid waste. The currently identified subcategories are believed to provide comprehensive coverage, with the Miscellaneous Industrial and Commercial Waste Incineration category believed to include the mixed feed and industrial solid waste incineration units not included in any of the other IWG subcategories. However, should that not prove to be the case, the Miscellaneous Industrial and Commercial Waste Incineration category could be expanded to include units not covered, or a new miscellaneous category could be defined. To date, all incinerators in the ICCR's databases that have been determined to be the responsibility of the ICCR are assigned to one of the IWG subcategories. Thus, it is unclear whether an additional *miscellaneous* or *other* category will ultimately be necessary.

The IWG recommends that the regulatory requirements for the above nonhazardous solid waste incineration subcategories be addressed in a single rulemaking package (i.e., a single preamble and regulation for proposal, and the same for promulgation) for efficiency purposes and because many of the requirements (e.g., for monitoring, recordkeeping, reporting, operator training and certification, siting, and pollution prevention) may be the same across multiple subcategories. We believe that this approach will simplify the rulemaking process, thereby fostering understanding of the regulatory requirements and better compliance. Because Section 129 distinguished between ICWI and OSWI, EPA has indicated that the rulemaking package would ~~also~~ need to distinguish between these two categories of combustion units. ~~or explicitly consider and reject this approach with a rational and logical explanation for why it is more reasonable to combine these two categories into one category (e.g., if the same emission limits were recommended for both categories):~~ Although the November 16, 1998, consent decree only requires EPA to discuss regulatory alternatives for ICWI sources, OSWI sources are also discussed in this RAP due to their similarity and because we expect to develop a combined

recommended regulation.

Much of the ICCR work groups' past work has been devoted to analyzing data contained in the following three databases:

- # **Inventory database** -- *a detailed listing of industrial and commercial combustion units used by all five ICCR source work groups and derived from existing State and federal databases.*
- # **Information collection request (ICR)/survey database** -- *responses from a recent survey providing updated and detailed information for facilities identified in the inventory database as combusting nonhazardous solid waste.*
- # **Emissions database** -- *emissions data collected from State agencies representing source testing of a variety of combustion units.*

The ICCR inventory database contains 8,091 facilities believed to have one or more incineration units. However, the responses to the ICR indicate that many of these units have been shut down or otherwise do not exist. (This may reflect the substantial progress made by industry in recent years to reduce the amount of waste produced.) Other units were eliminated from consideration because they were determined to be burning hospital and infectious medical waste, municipal waste, or other types of materials outside the scope of the ICCR. The status of about 1,700 potential units remains unknown because of insufficient information. Taking all of these factors into consideration, our best estimate of the number of incineration units in the inventory and ICR databases that are currently in operation and being addressed by the IWG is about 1,600. This estimate could increase or decrease by several hundred units as more information becomes available (e.g., the results of a follow-up mailing to facilities not responding to the first mailing).

The extent to which the inventory and ICR databases capture all operating incinerators in the U.S. is unknown. However, based on population estimates for individual subcategories, a rough guess is that the inventory and ICR databases represent most of the wood, wood waste, and drum and parts reclaimer units currently operating in the U.S. and over 50% of the remaining incineration subcategories, with the exception of several thousand poultry farm incinerators. These poultry farm units, typically rated at <100 lb/hr, have probably never been regulated or permitted due to their small size. (Information on these units was obtained from trade associations and equipment manufacturers.) In summary, although not all incineration units are captured within our databases, the IWG believes that the databases are representative of the cross-section of U.S. incinerators and provide a sufficient basis for rulemaking.

3.0 APPLICABILITY

The recommendations presented in this RAP will apply to all incineration units that are not exempt from Section 129 or addressed by other rulemakings. Section 129(g)(1) exempts wastes

required to have a permit under Section 3005 of the Solid Waste Disposal Act (i.e., hazardous wastes), material recovery facilities which combust waste for the primary purpose of recovering metals, qualifying small power production and co-generation facilities, and air curtain incinerators combusting only yard and wood wastes and clean lumber. Additionally, municipal waste combustors and hospital and medical infectious waste incinerators are exempt from this rulemaking because they are being addressed by EPA in parallel rulemakings or because they are already covered by other rulemakings. An example of draft applicability language and definitions for a combined ICWI/OSWI rule are presented in Attachment A.

4.0 SUBCATEGORY CHARACTERIZATIONS AND REGULATORY ALTERNATIVES

Descriptions of each recommended subcategory are presented in Attachment B and summarized in Table 2. Additionally, information and recommendations are presented on pollutants considered for regulation (at a minimum the nine pollutants listed in Section 129), whether a subcategory falls under ICWI or OSWI, any groupings within the subcategory, population statistics, material combusted, combustion device description, the basis for subcategory bounds, the floor level of control, the status of data collection and analysis, issues and needs, and other comments.

Based on the information currently available to the IWG, it appears that most existing incineration units have minimal or no controls in place. The exception is for most drum reclaimer furnaces and parts reclaimer burnoff ovens, which appear to have thermal oxidizers. **Additionally**, good combustion practices are routinely applied to pathological units due to State regulations, ~~and could represent the MACT floor for this subcategory.~~ Only very limited test data on most pollutants of interest are available for all incinerator subcategories, and the IWG, with the assistance of the BWG, has recommended test programs to address these **data testing** needs. Some subcategories (e.g., wood wastes) are small in terms of the number of operating units, and these may be candidates for merging into a larger subcategory, **provided that unit designs, emissions, and controls are similar.** For the two preliminary subcategories defined by the BWG, several floor controls and options above the floor have been identified.

5.0 POLLUTION PREVENTION

The IWG believes that pollution prevention should be considered an integral part of the Section 129 rulemaking and is committed to a further investigation of the **technical and economic** feasibility, practicality, and cost-effectiveness of various pollution prevention techniques. This commitment is consistent with the goals of the *Pollution Prevention Act of 1990* and EPA policy to consider and facilitate the adoption of source reduction techniques. Additionally, EPA has stated its opinion that Section 129(a)(3) of the *Clean Air Act* anticipates that pollution prevention may be included in regulations (i.e., as the basis of a floor or control level above the floor) by stating that standards “... shall be based on methods and technologies for the *removal* or destruction of pollutants *before*, during, or after combustion ... [emphasis added].” **Discussed below are several specific pollution prevention approaches forwarded**

by the CC to the work groups for their consideration.

~~As a starting point, the IWG will be considering the waste management plan approach used in the Section 129 rules for municipal waste and hospital and medical infectious waste incineration. We generally agree with the overall objective of certain waste management plans, which is to examine the feasibility, practicality, net environmental impact, and cost of and approach to separating certain components of solid waste from the combustion waste stream so as to reduce the amount of toxic emissions from the combusted waste.~~

~~Additionally, the list of possible pollution prevention items prepared by the CC regarding good combustion practices (GCP), operator training, and pollution prevention metrics will be reviewed along with any additional CC recommended information on alternative compliance and pollution prevention planning. The potential pollution prevention approaches identified to date by the CC are discussed below.~~

Good combustion practices. The CC has prepared guidance for the source work groups to consider on GCP options. The good combustion techniques covered in this guidance include:

- # Operator practices
- # Maintenance knowledge and practices
- # Stoichiometric ratio (air/fuel)
- # Firebox residence time, temperature, and turbulence
- # Fuel/waste quality, handling, sizing, dispersion, and liquid atomization
- # Combustion air distribution

If appropriate, implementation of these techniques could be accomplished through a combination of documented operating and maintenance procedures, logs and record-keeping, training on equipment and procedures, routinely scheduled inspections and maintenance, burner and control adjustments, system design, fuel/waste monitoring, and various system adjustments. (Although operator training itself could also be considered a good combustion practice, it is covered separately below.) The IWG believes that these techniques are potentially applicable to incineration units under Section 129, although the work group has not yet studied the specific applicability, benefit, disbenefit, or cost effectiveness of these techniques.

The IWG **believes that** ~~will evaluate~~ practical and effective combustion practices **may be** applicable to **some of** ~~the~~ its subcategories. Because of the variety of unit designs and waste types being addressed, it may be appropriate to develop a separate set of GCPs for each subcategory. For some subcategories, no GCPs may be appropriate. On the other hand, if there are practical and effective combustion practices that are the same or similar among multiple subcategories, a single set of GCPs for all units covered by those subcategories may be considered.

Operator Training/Qualification. Section 129(d) requires EPA to “... develop and

promote a model State program for the training and certification of solid waste incineration unit operators ...” The CC’s list of training/qualification activities for work group consideration includes the following definition of “operator:”

- # Operator means an individual or individuals whose work duties include the operation, evaluation, and/or adjustment of the combustion system.

The IWG **considers this a reasonable** ~~will consider adopting this~~ definition, although additional specificity will be needed and a clear distinction will have to be made between the incinerator “operator” and the “owner/operator” of the unit or facility.

The CC’s initial list of potential pollution prevention approaches for consideration includes specific training program elements, including:

- # Training and qualification criteria
- # Training programs and qualification exams
- # Training program materials and documentation of qualification

The **IWG considers** ~~IWG’s subteams~~ work groups will consider these requirements **potentially reasonable** for some incinerator operators, although the details **would** ~~still~~ need to be worked out. Additional work **would** ~~will~~ be required to fine tune the recommended training content for the specific types of units covered under Section 129, and separate sets of training content for specific subcategories may prove to be necessary.

Metrics. Emission limits previously promulgated under Section 129 (i.e., the municipal waste and hospital and medical infectious waste rules) have been expressed in units of concentration (e.g., *ng/dscm* or *ppm*). Concentration units are effective in reducing emissions based on control device efficiency and may also encourage pollution prevention. However, some pollution prevention techniques that significantly reduce mass emission rates may not concurrently reduce mass concentrations.

To encourage pollution prevention, the CC has asked the work groups to consider metrics other than concentration emission limits, where the numerator in the emission limit would be based on pollutant mass (e.g., *ng*) and the denominator would be based on time, energy output, heat input, fuel/waste input, or unit of production. However, compliance with such metrics may be impractical where the metrics are combustion unit size/capacity specific (e.g., metrics based on time), difficult to measure (e.g., metrics based on energy output, heat input, or fuel/waste input), or difficult to quantify (e.g., metrics based on unit of production). **The IWG believes that the concept of metrics has merit, but that additional study is needed to determine whether this approach is** ~~The IWG will consider the CC’s recommendations on metrics and assess whether these recommendations are practical or appropriate for compliance and effective in reducing emissions from Section 129 incineration units.~~

Regulatory Options. The CC has also recommended considering regulatory options such as waste accounting and recordkeeping and work practice standards. Waste accounting and recordkeeping would provide a paper trail of waste feedstream composition, thereby highlighting opportunities for source separation, source elimination, or recycle/recovery. Work practice standards would require specific handling or separation procedures for waste materials prior to burning, thereby reducing undesirable materials (e.g., waste components leading to specific HAP emissions) and potentially improving combustion efficiency (e.g., by removing high moisture content materials from the waste steam).

The IWG **considers these viable techniques in principle**, ~~will consider both of these techniques~~, although further information is needed on: (1) what specific handling or separation procedures might be applied to each of the subcategories, (2) the data or reasoning (e.g., based on combustion chemistry or engineering calculations) leading to the conclusion that a specific handling or separation procedure would provide a significant net life-cycle environmental benefit, and (3) evaluation of the potential benefit versus the burden (including economic burden) imposed.

6.0 STATUTES AND EXECUTIVE ORDERS

In addition to the substantive requirements imposed by the Clean Air Act when promulgating regulations, the Agency must comply with a number of administrative responsibilities prior to adopting regulations. Some of these obligations flow from statutes and others from executive orders (EOs) signed by the President as directives to the Executive Branch.

EPA must comply with administrative requirements in the following five statutes at the proposal stage of a regulation's development.³

- # Section 307(d) of the *Clean Air Act* requires that regulations under Section 129 be supported by a rulemaking docket and allow for both written and oral comment upon the proposed rule.
- # Under the *Paperwork Reduction Act*, EPA must obtain a control number from the Office of Management and Budget (OMB) if the regulation contains any information collection request (reporting obligations under an applicable emission standard, for instance) calling for answers to identical questions posed to ten or more persons.
- # The *National Technology Transfer and Advancement Act (NTTAA)* mandates that

³One additional statutory administrative requirement is triggered when the Agency promulgates *final* regulations. Under the Congressional Review Act, EPA generally must submit all rules of general applicability to Congress and the Comptroller General before the rule may take effect.

EPA must use existing suitable voluntary consensus standards (e.g., test methods) unless their use would be inconsistent with applicable law or otherwise impractical in EPA's judgment.

- # If the proposed regulation will contain a federal mandate forcing State, local, and tribal governments, in the aggregate, or the private sector to spend in excess of \$100 million in any given year, the *Unfunded Mandates Reform Act (UMRA)* requires EPA to prepare a statement identifying a number of economic and environmental costs and benefits associated with the proposed rule, both locally and nationally. UMRA also requires that, for proposed rules which require an UMRA statement, EPA must identify and consider a reasonable number of regulatory alternatives and select the least costly, most cost-effective, or least burdensome option that is consistent with the agency's statutory duties, unless EPA explains its choice not to select one of the foregoing options. UMRA lastly contains two consultation requirements: (1) EPA must consult with elected officers of State, local, and tribal governments with regard to proposed rules that contain significant Federal intergovernmental mandates, and (2) it must develop a small government agency plan (which provides for notice to, input from, and education for, small governments regarding a proposed rule) for any rule that might significantly or uniquely affect small governments.
- # The *Regulatory Flexibility Act (RFA)*, as amended by the Small Business Regulatory Enforcement Fairness Act, requires EPA to prepare an initial regulatory flexibility analysis (IRFA), convene a small business advocacy review panel, and include the IRFA or a summary of it in the proposal's preamble, unless the Administrator can certify that a proposed regulation will not have a significant economic impact on a substantial number of small entities. **(Additionally, Section 507 of the Act requires EPA and the States to develop small business stationary source technical and environmental compliance assistance programs.)**

In addition to its statutory obligations, EPA has the following **four three** EOs to consider.

- # Under *EO 12875*, EPA must develop an effective process for elected officials and other representatives of State, local, and tribal governments to provide meaningful input on regulatory proposals. Also, EPA may not (unless required by law) promulgate a regulation that creates an unfunded mandate upon State, local, or tribal governments without either providing funds necessary to pay the direct costs of compliance or consulting with representatives of affected governments prior to promulgation. (This is the same requirement that Congress subsequently enacted in UMRA.)
- # **Under *EO 13084, Consultation and Coordination with Indian Tribal***

Governments, EPA must establish a process permitting elected officials and other representatives of Tribal governments to provide input into the development of regulatory policies for matters significantly or uniquely affecting their communities. In certain instances, the federal government must either fund compliance costs, or EPA must provide OMB a description of the extent of EPA's consultation with representatives of affected Tribal governments, the nature of their concerns, and EPA's position supporting the need for the regulation. In some instances, EPA can waive regulatory requirements.

- # Prior to proposal, *EO 12866* requires that EPA seek involvement of parties affected by a proposed rule and suggests that at least a 60 day comment period on proposed rules be offered. The same EO also requires that EPA submit to OMB any proposed or final *significant* regulatory action for interagency review.⁴
- # *E.O. 12898* specifies that EPA must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, practicable, and permitted by law, disproportionately high and adverse human health or environmental effects of its rulemaking actions on minority and low-income populations.⁵

The ICCR has, ~~to date,~~ laid the groundwork for developing recommendations aiding EPA's compliance with these obligations. Specifically, work groups **have discussed** ~~currently are~~ discussing recommendations for *model plants*, which will reflect the design of typical facilities in the affected industry and could be used when EPA seeks to conduct the economic and environmental analyses necessary to comply with UMRA, RFA, and *EO 12866*. The Agency

⁴*Significant* is defined as an action having an annual effect on the economy of \$100 million or more; adversely affecting in any material way the economy, a sector of the economy, jobs, the environment, public health or safety, or affected governments or communities; creating a serious inconsistency or interfering with an action taken or planned by another agency; materially altering the budgetary impact of entitlements, grants, etc., or the rights/obligations of recipients; or raising novel legal or policy issues.

⁵If a rule is *significant* under *E.O. 12866* and it involves an environmental health or safety risk that EPA has reason to believe may disproportionately affect children, *EO 13045* requires EPA to evaluate the environmental health or safety effects of the planned regulation on children and explain why the proposal is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. Since the standards to be developed under Section 129 are technology-based and not health- or risk-based, *EO 13045* does not apply to the determination of MACT floor. The IWG **recommends that EPA consider** ~~is currently considering~~ whether and how *EO 13045* would otherwise influence **the Work Group's** ~~its other~~ recommendations for MACT standard regulatory development (e.g., the selection of pollutants in addition to those listed in section 129(a)(4)).

could consider the effect of proposed regulations upon these model plants as illustrative of the impact the proposals may have nationally. In addition, ICCR work groups, in the course of recommending hazardous air pollutants (HAPs) for testing and regulation under Section 112, also have identified existing test methods for measuring HAPs, and recommendations that these existing test methods be considered for determining compliance with regulations could be useful to the Agency's compliance with the NTTAA's requirement to search for applicable voluntary consensus standards. Next, Section 129(a)(3) directs that standards for new sources incorporate "siting requirements that minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health and the environment." Siting requirements may trigger environmental justice concerns, and the IWG expects to consider the Agency's Environmental Justice Implementation Plan in developing recommendations that address such concerns. **[Add EJ implementation plan citation.]**

7.0 ISSUES AND NEEDS

Waste Burning Boilers. ~~EPA has indicated that~~ Incinerators burning **non-hazardous solid** waste are covered under Section 129. However, there is an unresolved issue concerning boilers that burn waste or waste mixed with fuels (e.g. coal or natural gas). ~~Section 129 focuses on what is burned and not on the device in which it is burned.~~ **EPA's current opinion is that** ~~Therefore, it is clear that~~ a boiler burning nonhazardous solid waste, as ultimately defined by EPA, is covered by Section 129. (See *footnote 2* regarding the status of the definition of nonhazardous solid waste.) Does this mean if the boiler burns any amount of waste that it is covered, or is there a minimum amount necessary before it falls under Section 129? In the case of incinerators that burn municipal solid waste (MSW), the unit falls under Section 129 if more than 30% MSW is combusted. However, in the case of boilers, the issue may be more complex since the composition and amount of waste burned may vary with time, and the toxicity of the emissions will also vary depending upon the composition of the waste stream. Since at present EPA has not finalized its definition of nonhazardous solid waste for the purposes of Section 129, should all materials disposed of by burning be addressed under Section 129?

Waste Composition Averaging Time. In many cases, incinerators and boilers burn waste streams that are not homogeneous. Depending upon the facility and wastes disposed of, waste "A" may be burned for several hours early in the work day, followed by waste "B," followed by wastes "C" and "D" or a mixture of A, B, C, and D in varying amounts. In some cases, waste "E" will be burned for several months, followed by waste "F" for some period of time. This may result in widely varying emissions over the course of a day, month, or year. Unless emissions testing is done when each waste is burned and in all possible combinations, emissions data will not be representative of actual operating conditions. Operating permits often specify a waste composition to be burned (e.g., % waste "X" per unit time), and long averaging times may result in periods of emissions of widely varying toxicities while still conforming to the conditions of the permit. Based on the above operating scenarios, an analysis of potential variables is needed to define an acceptable averaging time for each subcategory. This analysis is necessary for purposes of determining the applicability of the standards, setting the level of the standards, and

determining compliance. The heart of the issue is how averaging time impacts toxicity of emissions by allowing variability of mass emission rates while still assuring the protection of human health.

draft

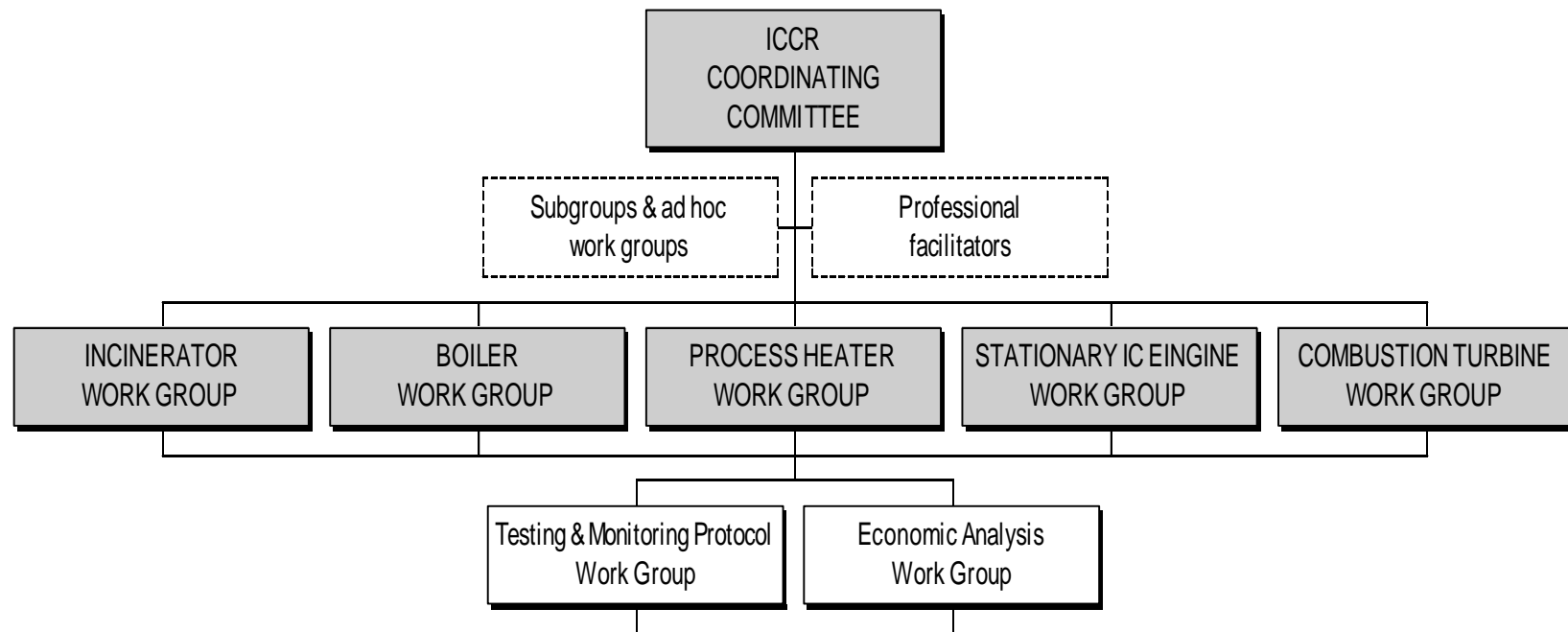


Figure 1. Illustration of ICCR organization.

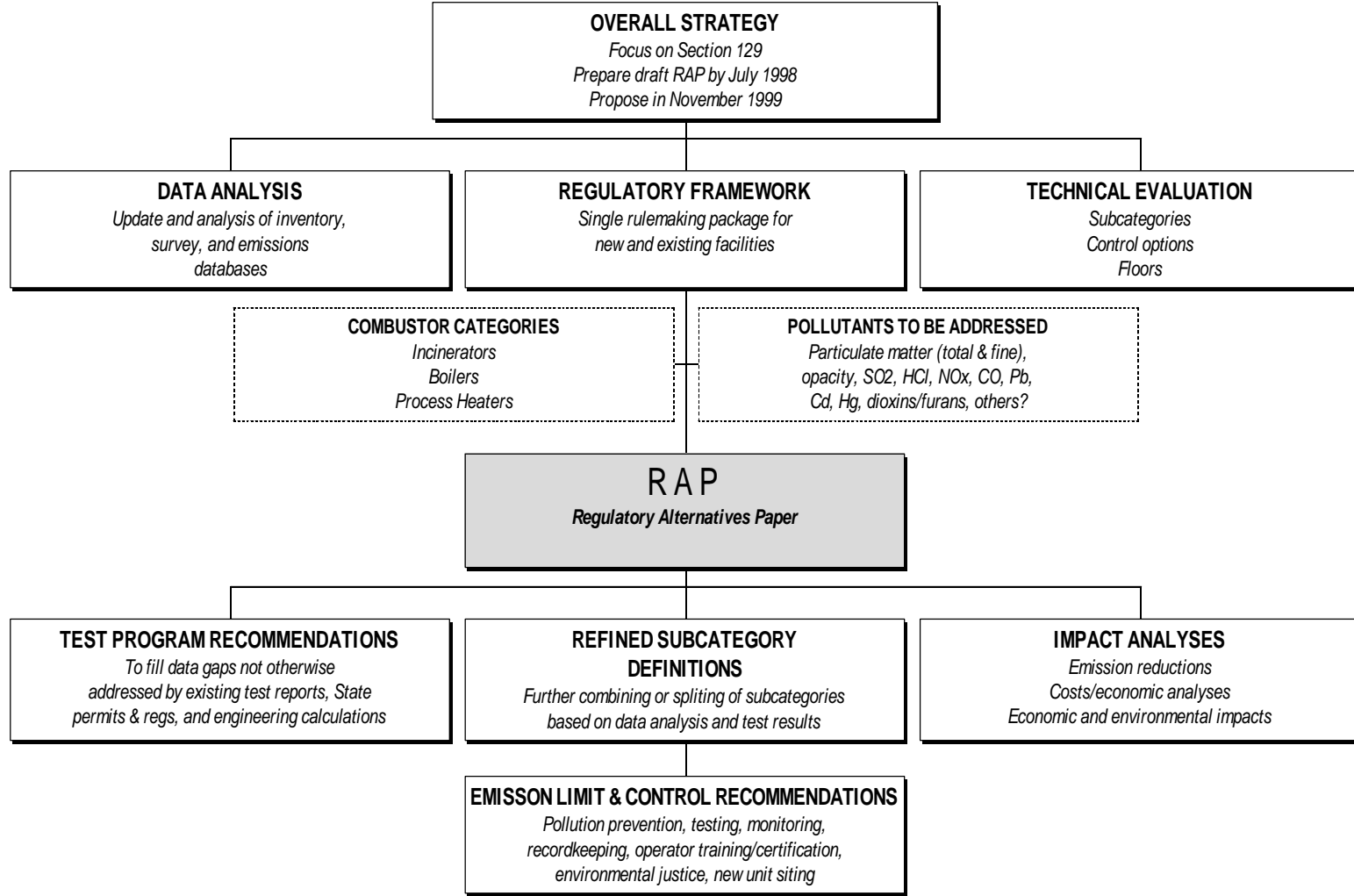


Figure 2. Illustration of IWG steps leading to the RAP and beyond.

TABLE 1. INCINERATOR WORK GROUP SUBTEAMS

SUBTEAM NO.	SUBTEAM NAME	CURRENT SUBCATEGORY RESPONSIBILITIES
1	<u>Pathological Wastes and Crematories</u>	< <i>Pathological wastes and crematories, including these groupings:</i> <i>a. Poultry farms ... (<100 lb/hr)</i> <i>b. Human crematories ... (100-500 lb/hr)</i> <i>c. Hospital, animal control, research facilities ... (>500 lb/hr)</i>
2	<u>Chemical, Petroleum, and Pharmaceutical Solids, Liquids, and Sludges</u>	< <i>Miscellaneous Industrial and Commercial Waste Incinerators</i>
3	<u>Wood, Construction & Demolition, and Agricultural Wastes</u>	< <i>Wood, construction & demolition, and agricultural wastes, and</i> <i>wood wastes, including these groupings:</i> <i>a. Milled solid and engineered wood</i> <i>b. Harvested wood and agricultural</i> <i>c. Construction, demolition, and treated wood</i> <i>d. Finishing wastes (under consideration)</i>
4	<u>Metal Parts and Drums</u>	< <i>Drum reclaimer furnaces</i> < <i>Parts reclaimer burnoff units</i>

TABLE 2. SUMMARY OF PRELIMINARY SUBCATEGORY DEFINITIONS

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
<u>Miscellaneous Industrial and Commercial Waste Incinerators</u>	None identified at this time	By-products of industrial operations (including combinations with less than 30% municipal-type solid waste trash or less than 10% medical waste), environmental control device sludges, waste by-products, maintenance residues, off-test and out-dated materials, and packaging materials	ICWI	~150		Section 129 pollutants	<u>Preliminary</u> : CO and particulate controls appear to be present at more than 12 percent surveyed units	
<u>Wood and Wood Wastes</u>	Milled Solid and Engineered Wood Wastes	Wastes and residues resulting from wood-working manufacturing activities, containing 2 to 15 percent by weight adhesives, glues, and binders in engineered woods, and containing no more than 5 percent by weight of contaminants such as cardboard, paper, paints, and solvents	OSWI	18		Section 129 pollutants	No control	Considering good combustion practices, source separation, particulate controls, scurbbbers, ESPs, afterburners, and secondary combustors

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
“	Harvested Wood and Agricultural Wastes	Wastes and residues resulting from land clearing, orchard, silviculture, nursery, greenhouse, agricultural, and forest management activities and sawmill operations and containing no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper	OSWI	8		Section 129 pollutants	No control	Considering good combustion practices, source separation, particulate controls, scrubbers, ESPs, afterburners, and secondary combustors
“	Construction, Demolition, and Treated Wood Wastes	Wastes and residues resulting from: (1) the construction, remodeling, repairing, and demolition of individual residences, commercial buildings, and other structures, and (2) the treatment of wood products that are impregnated or otherwise treated with various preservatives for the purpose of protecting or otherwise extending the structural properties of the wood	OSWI	9		Section 129 pollutants	No control	Considering good combustion practices, source separation, particulate controls, scrubbers, ESPs, afterburners, and secondary combustors

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
<u>Pathological Waste Incinerators and Crematories</u>	<100 lb/hr (primarily poultry farmers; also small animal crematories, veterinary centers, humane societies, and pharmaceutical companies)	Human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable)	OSWI		Potentially several thousand	Section 129 pollutants	Good combustion practices	
“	<u>100 to 500 lb/hr</u> (primarily human crematories; also animal crematories, veterinary clinics, humane societies, and pharmaceutical companies)	“	OSWI		2,000	Section 129 pollutants	Good combustion practices	

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
“	> <u>500 lb/hr</u> (primarily animal disposal systems for hospitals, animal control facilities, and research facilities)	“	OSWI		100	Section 129 pollutants	Good combustion practices	
<u>Drum Reclaimer Furnaces</u>	None	An incinerator used to reclaim steel containers (e.g., 55 gallon drums) for reuse or to prepare them for recycling by burning or pyrolyzing interior and exterior container coatings and residues prior to cleaning by abrasive shot blasting (containers must be empty as defined by RCRA prior to processing)	ICWI	44	55	To include Section 129 list	Thermal oxidation for existing and new units	Spray dryer or wet scrubber for acid gases; fabric filter for metals; GCPs

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
<u>Parts Reclaimer Burnoff Units</u>	None	An incinerator used to reclaim metal parts such as paint hooks and racks, electric motor armatures, transformer winding cores, and electroplating racks for use in their current form by burning off cured paint, plastisol (i.e., polyvinyl chloride and phthalate plasticizer), varnish, or unwanted parts such as plastic spacers or rubber grommets	ICWI	332	~1350	Section 129 pollutants	Thermal oxidizers for existing and new units	Spray dryer or wet scrubber for acid gases; fabric filter for metals; GCPs
<u>Potential Section 129 Solid Mixed Feed Boilers</u>	None	Various non-fossil Section 129 solid materials generally co-fired with other non-fossil materials or fossil fuels	ICWI TBD	322		Section 129 pollutants	<u>Preliminary:</u> fabric filters for metals, scrubbers for inorganic HAPs, and GCPs for organic HAPs; scrubbers for Hg from new units	<u>Preliminary:</u> carbon adsorption for organic HAPs and Hg; none identified for metals and inorganic HAPs

SUB-CATEGORY NAME	GROUPING WITHIN SUB-CATEGORY	MATERIAL COMBUSTED	ICWI or OSWI	EST. NO. OF UNITS		POLLUTANTS CONSIDERED FOR REGULATION	FLOOR LEVEL OF CONTROL	REGULATORY ALTERNATIVES ABOVE FLOOR
				IN DATA-BASE	NATION-WIDE			
<u>Potential Section 129 Liquid Mixed Feed Boilers</u>	None	Various non-fossil Section 129 liquid materials generally co-fired with other non-fossil materials or fossil fuels	ICWI TBD	153		Section 129 pollutants	<u>Preliminary:</u> Existing units -- ESPs for metals, scrubbers for inorganic HAPs, and GCPs for organic HAPs. New units -- fabric filters for metals, gas absorbers for inorganic HAPs, GCPs for organic HAPs, and scrubbers for Hg	<u>Preliminary:</u> Fabric filters for metals and carbon adsorption for organic HAPs and Hg; none identified for inorganic HAPs

ATTACHMENT A

EXAMPLE APPLICABILITY LANGUAGE AND DEFINITIONS

draft

Subpart [?] -- Standards of Performance for Solid Waste Incineration Units for Which Construction is Commenced After [date]

Section [?] Am I subject to this regulation?

(a) Except as provided in paragraph (b) of this Section, the affected facility to which this subpart applies is each individual Solid Waste Incineration Unit for which construction or reconstruction is commenced after [date] or for which modification is commenced after [date].

(b) The following facilities are not subject to this subpart:

(1) Any incinerator or other unit required to have a permit under Section 3005 of the Solid Waste Disposal Act (subpart EEE).

(2) Any materials recovery facility (including primary or secondary smelters) which combusts waste for the primary purpose of recovering metals.

(3) Any qualifying small power production facility, as defined in Section 3(17)(C) of the Federal Power Act (16 U.S.C. 769(17)(C)), or qualifying cogeneration facilities, as defined in Section 3(18)(B) of the Federal Power Act (16 U.S.C. 796(18)(B)), which burn homogeneous waste (such as units which burn tires or used oil, but not including refuse-derived fuel) for the production of electric energy or, in the case of qualifying cogeneration facilities, which burn homogeneous waste for the production of electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes.

(4) Any air curtain incinerator that burns only wood wastes, yard wastes, and clean lumber and that complies with the opacity limitations in subpart [?].

(5) Any incinerator or other unit which meets the applicability requirements under subpart Cb, Ce, Ea, Eb, or Ec of this part (i.e., standards or guidelines for municipal waste and hospital and medical infectious waste incinerators).

(6) Municipal sewage sludge incinerators which meet the applicability requirements under subpart [?].

Sec. [?] How are the terms used in this subpart defined?

Air Curtain Incinerator means an Incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which burning occurs; Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor.

Boiler means an enclosed device using controlled flame combustion and having the primary

purpose of recovering and exporting useful thermal energy in the form of hot water, saturated steam, or superheated steam. The principal components of a boiler are a burner, a firebox, a heat exchanger, and a means of creating and directing gas flow through the unit. A boiler's combustion chamber and primary energy recovery section(s) must be of integral design (i.e., the combustion chamber and the primary energy recovery section(s), such as waterwalls and superheaters, must be physically formed into one manufactured or assembled unit.) (A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section.) Only stand alone boilers are covered by this definition; waste heat boilers which are associated with stationary gas turbines or engines are excluded.

Commercial and Industrial Solid Waste Incineration Units means the following types of Solid Waste Incineration Units: Miscellaneous Industrial and Commercial Waste Incinerators; Drum Reclaimer Furnaces; Parts Reclaimer Burnoff Units; and **any potentially** other applicable subcategories of boilers and process heaters].

Construction, Demolition, and Treated Wood Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from: (1) the construction, remodeling, repairing, and demolition of individual residences, commercial buildings, and other structures, including pallets; forming and framing lumber; treated lumber; shingles; tar-based products; plastics; plaster; wallboard; insulation material; broken glass; painted or contaminated lumber; chemically treated lumber; white goods; reinforcing steel; and plumbing, heating, and electrical parts; and (2) the treatment of wood products that are impregnated or otherwise treated with various preservatives (e.g., creosote, copper compounds, arsenic compounds, pentachlorophenol, [to be added]) for the purpose of protecting or otherwise extending the structural properties of the wood.

Drum Reclaimer Furnace means an incinerator used to reclaim steel containers (e.g., 55 gallon drums) for reuse or to prepare them for recycling by burning or pyrolyzing interior and exterior container coatings and residues prior to cleaning by abrasive shot blasting. (Containers must be empty as defined by RCRA prior to processing.)

Harvested Wood and Agricultural Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from land clearing, orchard, silviculture, nursery, greenhouse, agricultural, and forest management activities and sawmill operations and containing no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper.

Incinerator means any enclosed device using controlled flame combustion to combust Solid Waste for the primary purpose of reducing the volume of waste and does not incorporate heat

recovery as part of its integral design.

Liquid Mixed Feed Boiler means a Boiler combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of various non-fossil liquid materials which are generally co-fired with other non-fossil materials or fossil fuels.

Milled Solid and Engineered Wood Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from woodworking manufacturing activities, containing 2 to 15 percent by weight adhesives, glues, and binders in engineered woods, and containing no more than 5 percent by weight of contaminants such as cardboard, paper, paints, and solvents.

Miscellaneous Industrial and Commercial Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on an annual basis, of byproducts of industrial operations (including combinations with less than 30% trash or less than 10% medical waste), environmental control device sludges, waste byproducts, maintenance residues, off-test and out-dated materials, and packaging materials.

Other Solid Waste Incineration Unit Units means the following types of Solid Waste Incineration Units: Construction, Demolition, and Treated Wood Waste Incinerators; Harvested Wood and Agricultural Waste Incinerators; Milled Solid and Engineered Wood Waste Incinerators; Pathological Waste Incinerators and Crematories; and **any potentially** other applicable subcategories of boilers and process heaters].

Parts Reclaimer Burnoff Unit means an Incinerator used to reclaim metal parts such as paint hooks and racks, electric motor armatures, transformer winding cores, and electroplating racks for use in their current form by burning off cured paint, plastisol (i.e., polyvinyl chloride and phthalate plasticizer), varnish, or unwanted parts such as plastic spacers or rubber grommets.

Pathological Waste Incinerator and Crematory Unit means an Incinerator combusting Solid Waste comprised, in aggregate, of more than 90 percent by weight, as measured on a daily basis (and more than 70 percent on an individual batch basis), of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

Process Heater means an enclosed device using a controlled flame with physical provisions for recovery and exporting thermal energy to an industrial or commercial process or process stream, principally in a form other than hot water, saturated steam, or superheated steam.

Solid Mixed Feed Boiler means a Boiler combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of various non-fossil solid materials which are generally co-fired with other non-fossil materials or fossil fuels.

Solid Waste means ... [This definition is currently under discussion at EPA. The definition will apply only to units under Section 129 that combust nonhazardous solid waste.]

Solid Waste Incineration Unit means a distinct operating unit of any facility which combusts any Solid Waste material from commercial or industrial establishments or the general public (including single and multiple residences, hotels, and motels) **including Commercial and Industrial Solid Waste Incineration Units and Other Solid Waste Incineration Units, but excluding the facilities identified in section [?](b).**

ATTACHMENT B

DRAFT SUBCATEGORY DEFINITION SHEETS

DRAFT

SUBCATEGORY NAME: Miscellaneous Industrial and Commercial Waste Incinerators

ASSIGNED CAA Section (ICWI OR OSWI): Section 129 (ICWI)

GROUPINGS WITHIN SUBCATEGORY: None identified at this time, but further analysis could lead to subdividing, particularly separating industrial wastewater sludges.

POPULATION STATISTICS: Approximately 150 combustors identified in the EPA population database; approximately 80 provided ICR responses and are included in the survey database.

MATERIAL COMBUSTED: Byproducts of industrial and commercial operations, including combinations with less than 30 percent ~~municipal-type solid waste trash~~ and 10 percent medical waste, environmental control device sludges, waste byproducts, maintenance residues, off-test and out-dated materials, and packaging materials.

COMBUSTION DEVICE: All types of incinerators are used, including, but not limited to, single and multi chamber, fluid bed, rotary kilns, multiple hearth, and tray types. Air pollution control devices are generally add-on units whose type and efficiency are driven by state regulations and permit conditions.

BASIS FOR SUBCATEGORY BOUNDS: This subcategory includes solids, liquid, and sludge incinerators mostly within SIC code 28, but includes incinerators burning similar materials at all types of facilities.

POLLUTANTS CONSIDERED FOR REGULATIONS: Particulate matter (total and fine), opacity (as appropriate), SO₂, HCl, NO_x, CO, Pb, Cd, Hg, and dioxins and furans.

FLOOR LEVEL OF CONTROL: Preliminary review indicates CO and particulate control are present at more than 12 percent of the surveyed units.

REGULATORY ALTERNATIVES ABOVE FLOOR: To be determined.

STATUS OF DATA COLLECTION AND ANALYSIS: Initial source list identified; gathering emission and control data.

ISSUES AND NEEDS: Developing test plan to address pollutants for which there does not appear to be any emission or permit limit data.

OTHER COMMENTS: Based on the information available, there is no indication of whether the material being combusted or the equipment design leads to different HAP emissions.

SUBCATEGORY NAME: Wood and Wood Waste Incinerators

ASSIGNED CAA SECTION (ICWI OR OSWI): Section 129 (OSWI).

GROUPINGS WITHIN SUBCATEGORY:

Milled Solid and Engineered Wood Wastes
Harvested Wood and Agricultural Wastes
Construction, Demolition, and Treated Wood Wastes
Finishing wastes (under consideration)

POPULATION STATISTICS:

All units identified in the database as combusting materials associated with agricultural activities were individually verified. Of the 18 units listed in the database, no units were found to be incinerators actually combusting agricultural types of materials. Seven units were no longer in existence, five units were small MWC's, four units were combusting materials within the purview of other workgroups and were therefore transferred, one unit was a boiler, and one unit was a process heater. Two agricultural trade associations and a multinational company were solicited by the subteam for assistance in identifying agricultural incineration units within their organizational membership and outside the database. Neither were able to verify the existence of such units. Thus, it is the belief of the subteam that incineration units dedicated to the combustion of agricultural waste are few to non-existent. If such units exist, it is the belief of the subteam that these units are small to very small in nature.

Twenty two units were identified within the database as combusting various types of wood materials. The subteam independently verified each of these units -- nine units were identified as being "air curtain" incineration units, seven units were identified as small to very small incineration units without specific pollution controls combusting various types of wood materials, two units were MWC's, one unit was a teepee, one unit was an open burning operation, one unit was a boiler, and one unit is no longer in operation.

The subteam believes that air curtain units are properly addressed under Section 129 g(1) of the rule in which air curtain units are exempted from this rulemaking if they burn wood waste, yard waste, and clean lumber and comply with opacity limits as set forth by the Administrator. It is also the understanding of the subteam that under the current MWC rules, there are no opacity limits specified for air curtain units burning the above materials.

The subteam believes there may be more teepee and open burning operations combusting wood than has been identified in the database. The subteam believes that various State permit conditions dealing with these units provide valuable guidance and should be consulted and reviewed prior to the setting of any federal conditions or standards. The subteam recommends consideration of basing any federal recommendations for teepees and open burning on the State rules.

Of the seven units identified by the subteam as incineration units combusting various materials consisting of wood, the subteam has found these units to be small to very small in size. These units were also found to have no specific pollution control and were operating infrequently on an as needed or batch basis. The subteam **has determined that these units are** believes these units ~~to be~~ difficult to control outside of good combustion practices. Although the number of units identified in the database combusting these materials is small, the subteam **has concluded that the database is** believes the database to be correct in that most wood type materials are combusted as fuels in boilers. Although this particular category has a small number of units identified, the subteam **recommends that these units not** does not believe these units should be placed or moved into a broader miscellaneous category. ~~The subteam believes~~ These units should only be regulated under the current list of pollutants in Section 129 and should not be placed into a broader category in which other applicable pollutants of concern are regulated.

MATERIALS COMBUSTED:

Milled Solid and Engineered Wood Wastes Wastes and residues resulting from woodworking manufacturing activities. The specific characteristics of these materials vary depending on the specie of wood (e.g., pine, oak, and poplar) and the engineered wood (e.g. particleboard, plywood, and fiberboard) used. The proportion of adhesives, glues, and binders normally found in engineered wood ranges from 2 to 15 percent by weight depending on the product. The composition is variable and contains no more than 5 percent by weight of other contaminants such as cardboard, paper, paints, and solvents.

Harvested Wood and Agricultural Wastes. Wastes and residues resulting from land clearing, orchard, silviculture, nursery, greenhouse, agricultural, and forest management activities and sawmill operations. The **combustion specific** characteristics of these materials vary, **and** the moisture content typically ranges from 20 to 60%. ~~is variable~~. **Some wastes will have been treated with pesticides and herbicides**. The composition contains no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper.

Construction, Demolition, and Treated Wood Wastes. *Construction wastes* are wastes and residues resulting from the construction, remodeling, and repairing of individual residences, commercial buildings, and other structures. The composition is variable and generally includes pallets, forming and framing lumber, treated lumber, shingles, tar-based products, plastics, plaster, wallboard, insulation material, plumbing, heating, and electrical parts. *Demolition wastes* are generally the same as construction wastes but may include broken glass, painted or contaminated

lumber, chemically treated lumber, white goods, and reinforcing steel. *Treated wood wastes* are wastes and residues resulting from the treatment of wood products that are impregnated or otherwise treated with various preservatives (e.g., creosote, copper compounds, arsenic compounds, pentachlorophenol, [additional preservatives to be added]) for the purpose of protecting or otherwise extending the structural properties of the wood. The composition is variable and contains such contaminants as organic and inorganic chemicals, metals, oils, paint, solvents, and pigments.

~~**Finishing Wastes** Preliminary data indicate the possibility of incinerators that burn finishing wastes as a primary feed material. If further evaluation confirms the existence of such incinerators, a *finishing waste* category will be added.~~

COMBUSTION DEVICE: Includes single and multi-chamber and fluidized bed incinerators (i.e., devices without heat recovery) of various sizes, and also open burning, air curtain incinerators, and teepees. The types of waste combusted in each of these combustion devices is illustrated in the following matrix.

COMBUSTION DEVICE	WOOD AND WOOD WASTE TYPE			
	Milled solid and engineered	Harvested wood and agricultural	Construction, demolition, and treated	Finishing
Open burning		U	?	
Air curtain	?	U	?	?
Teepee	U	?	?	?
Incinerator	U	?	U	?

BASIS FOR SUBCATEGORY BOUNDS: Waste and equipment type and possibly size; other criteria are being considered.

POLLUTANTS CONSIDERED FOR REGULATION: Section 129 Pollutants.

FLOOR LEVEL OF CONTROL: The floor for existing units is no control, based on the absence of any controls among those units found in the inventory and survey databases. State regulations and permits were not found for these units, except for several opacity limits. A best controlled similar unit for determining the new unit floor was not identified.

REGULATORY ALTERNATIVES ABOVE FLOOR: Yet to be evaluated, but considering good combustion practices, source separation, particulate controls, scurbbbers, ESPs, afterburners, and secondary combustors.

STATUS OF DATA COLLECTION AND ANALYSIS: The survey database indicates six units to have test data, and actions have been initiated to obtain these test reports. The database indicates 11 units to have some kind of control, but independent verification by the Subteam identified no units as having controls. Two units were identified by the Subteam as being teepee burners and 2 units were identified as air curtains.

ISSUES AND NEEDS: Test data are lacking. Additional testing may be needed for milled, harvested, and treated wood wastes, although due to the small number of units in the category, the subteam does not recommend testing at this time. Instead, the subteam believes that adequate data of good quality currently exist within State permit conditions and regulations and that these data should be used to establish emission limits.

OTHER COMMENTS:

The Subteam does not know if the applicability of an agricultural subcategory is valid. Although independent verification of the 18 facilities listed as agricultural facilities in the database indicated no such facility or unit exists, the Subteam will continue to carry this category until a more definitive determination is made. For emissions data, the Subteam is considering a NY/EPA test summary, tests reported in the 1998 EPA dioxin emissions inventory report, and test data reported in the ICR survey responses. A number of survey test reports have been requested.

A list of wood and wood waste facilities, unit types, and controls is presented below. This list was initially compiled from the inventory and survey databases. Contacts were then made with individual facilities to determine their operational status. Facilities found not to be in operation or otherwise misclassified were deleted from the initial list, resulting in the revised list presented below.

<u>ICCR#</u>	<u>Facility Name</u>	<u>Unit Type</u>	<u>Type of Controls</u>
450130037	Malphrus Construction #2	Air Curtain	None
220330013	La Skid and Pallet	Air Curtain	None
19059W350	Stylecraft, Inc	Incinerator	None
19059W350	Stylecraft, Inc	Incinerator	None
19059W350	Stylecraft, Inc	Incinerator	None
300670003	Park Lumber Company	Teepee	None
470830063	Imperial Fabricating Company	Incinerator	None
470890001	Burroughs-Ross Colville	Open Burning	None
47163A280	City of Kingsport	Air Curtain	None

47005A246	City of Alcoa	Air Curtain	None
120990233	Marks Landscaping & Paving	Air Curtain	None
530470015	Zosel Lumber	Incinerator	None
511750050	Atlantic Wood	Air Curtain	None
160490002	L.D. McFarland	Air Curtain	None
170312435	Service Products Inc	Incinerator	None
390775014	R.R. Donnelley & Sons	Incinerator	None
482010110	Cagle Constructors	Air Curtain	None
482010110	Cagle Constructors	Air Curtain	None
482010110	Cagle Constructors	Air Curtain	None
550750390	Fruday Canning Corp	Incinerator	None

SUBCATEGORY NAME: Pathological Waste Incinerators and Crematories

ASSIGNED CAA Section (ICWI OR OSWI): Section 129 (OSWI).

GROUPINGS WITHIN SUBCATEGORY:

By mass burn rates as follows: less than 100 lb/hr; 100 to 500 lb/hr; over 500 lb/hr. Profiles for each of these groups is given below. Grouping is also possible by the amount and composition of material burned that is not animal or human remains.

Less than 100 lb/hr mass burn rate

Typical user profile- Primarily poultry farmers; secondarily small animal crematories, veterinary centers, humane societies, and pharmaceutical companies. Little or no training on operating parameters by a qualified source.

Annual operating hours per unit- unknown

Typical waste profile- Primarily poultry carcasses; secondarily small animal remains, the bags/containers used to collect and transport the waste material, and animal bedding.

Typical design profile- For poultry units: single chamber systems; fueled with #2 fuel oil, LP gas, or natural gas; no air or temperature controls; manual operating system; batch fed; no add-on emission controls.

100 to 500 lb/hr mass burn rate

Typical user profile- Primarily human crematories; secondarily: animal crematories; veterinary clinics; humane societies; and pharmaceutical companies. Training often required and usually conducted by manufacturers or service organizations.

Annual operating hours per unit- 700

Typical waste profile- Primarily human remains and associated containers; secondarily: animal remains, the bags/containers used to collect and transport the waste material, and animal bedding.

Typical design profile- Multiple chamber systems; fueled with natural gas, LP gas, or #2 fuel oil; limited air controls; limited temperature controls; manual control system; batch fed; no add-on emissions control devices.

Greater than 500 lb/hr mass burn rate

Typical user profile- Primarily animal disposal systems for hospitals, animal control facilities, and research facilities.

Annual operating hours per unit- 1000

Typical waste profile- Primarily animal remains, the bags/containers used to contain them, and animal bedding.

Typical design profile- Multiple chamber systems; fueled with natural gas, LP gas, or #2 fuel oil; air and temperature controls; automatic control systems; mechanical feed with intermittent charging; no add-on emissions control devices.

POPULATION STATISTICS:

Nationwide estimate	<u>Less than 100 lb/hr</u> - possibly several thousand units
by size groupings:	<u>100 to 500 lb/hr</u> - 2000 units
	<u>Over 500 lb/hr</u> - 100 units

MATERIALS COMBUSTED: Pathological waste is waste material consisting of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding, if applicable(*from the HMIWI MACT*).

COMBUSTION DEVICE:

These combustors are generally single or multiple chamber designs. They are fueled with fossil fuel and operate with excess air. The wastes, consisting of at least 90% by mass pathological waste as defined above, are fed as single batches or intermittently fed. (Subteam #1 recommends that the 90% limit be determined on a daily basis, but at no time shall any batch consist of less than 70% pathological material.) Typically these combustors have no add-on emission control devices.

A crematory incinerator is a pathological waste incinerator which is primarily used to reduce single batches of human or animal remains and their containers (pathological waste) to their basic elements with the intent of recovering the cremated remains for memorialization purposes.

Pathological waste combustors can be classified into the following design categories:

Retort incinerators -- multiple chamber incinerator designs in which the secondary chamber is located directly beneath the primary chamber. The purpose of this configuration is that the hearth of the primary chamber is heated by the products of combustion flowing through the secondary chamber. This type of design is superior for controlling fluids involved in the incineration of human and animal tissue. Because the temperature of the secondary chamber affects the temperature of the primary chamber, excessive temperature in the secondary

chamber (above 1600°F) has a tendency to increase emissions due to the accelerated burning rate of the charge.

In-line incinerators-- similar to the retort design in that the chambers share a common wall. In the in-line design the secondary chamber is not underneath the hearth, but is behind the primary chamber. This design is less effective than the retort in destroying the fluids from human and animal tissue.

Multi-chamber incinerators-- multiple chamber incinerator designs consisting of separated primary and secondary chambers. The secondary chamber is generally located above the primary chamber with the two chambers having no common ceilings, hearth, or walls between them. The temperature in the secondary chamber has little or no influence on the primary chamber temperature. This design is preferable in processing non-tissue wastes.

BASIS FOR SUBCATEGORY BOUNDS: As regulation development proceeds, it may be beneficial to make subdivisions based on size, waste mix, or other criteria.

POLLUTANTS CONSIDERED FOR REGULATION: Section 129 pollutants.

FLOOR LEVEL OF CONTROL (EXISTING): Good combustion practice.

REGULATORY ALTERNATIVES ABOVE FLOOR (EXISTING): To be determined.

BEST CONTROLLED SIMILAR SOURCE (FLOOR-NEW): To be determined.

REGULATORY ALTERNATIVES ABOVE FLOOR (NEW): To be determined.

STATUS OF DATA COLLECTION AND ANALYSIS: Have obtained numerous emission test reports on criteria pollutants and have requested additional test information for the Section 129 pollutants. However, the available data are incomplete and do not represent the scenarios we wish to evaluate. ~~Will evaluate~~ ~~have EPA request~~ information from the ICR respondents indicating they have information on the use of add-on emissions control devices.

ISSUES AND NEEDS: The majority of the units in the *less than 100 lb/hr* grouping are not represented in the databases.

OTHER COMMENTS: None.

SUBCATEGORY NAME: Drum Reclaimer Furnaces

ASSIGNED CAA SECTION (ICWI OR OSWI): Section 129 (ICWI).

GROUPINGS WITHIN SUBCATEGORY: None.

POPULATION STATISTICS:

ICCR Inventory Database - 38 facilities, 44 units
Trade group estimate - 55 units (national population)

MATERIALS COMBUSTED: The drum reclaimer furnace is used to reclaim steel containers, most often 55-gallon drums, for reuse or to prepare them for recycling. Drums are prepared for cleaning by abrasive shot blasting by being processed through the furnace, where interior and exterior coatings and residues are burned or pyrolyzed. Drums must be empty as defined by RCRA prior to furnace processing, **and thus, not subject to Section 3005 permitting requirements.** Natural gas is most often fired as the primary fuel in drum furnaces.

COMBUSTION DEVICE: The typical drum reclaimer furnace is a semi-continuous tunnel furnace equipped with a high temperature thermal oxidizer. Heat inputs listed in the ICCR inventory database range from 1.2 MMBtu/hr to 15.6 MMBtu/hr.

BASIS FOR SUBCATEGORY BOUNDS: Due to the easy identification and substantial number of these units in the ICCR inventory database, their unique purpose, and the potential for emissions of Section 129 pollutants, they were subcategorized for further study. Drum reclaimer furnaces are distinct from parts reclaimer burnoff units because the drum reclaimer furnaces tend to be larger, with greater heat input, are semi-continuous rather than batch, and hazardous constituents potentially present in the drums may result in emissions different from those of parts reclaimers.

POLLUTANTS CONSIDERED FOR REGULATION: These include the complete set of Section 129 pollutants: PM, SO₂, CO, NO_x, Pb, and HCl, dioxins/furans, Hg, and Cd. PM (RM5) emissions are likely to be fairly well-characterized, and there exist a number of State regulations on PM emissions from these furnaces. However, queries of the SURVEYV2.MDB database indicate that no HAPs data are available. The 112(c)(6) emissions inventory lists a 2,3,7,8-TCDD TEQ emission factor of 1.09E-07 lbs per 1000 drums burned.

FLOOR LEVEL OF CONTROL: Based on the inventory database, the floor for existing units is ~~This is likely to be a high-temperature thermal oxidation. oxidizer along with~~ Practices such as ensuring that the drums are empty of all materials that can be reasonably removed by techniques other than combustion, and thermal oxidizer preheat prior to

introducing drums into the furnace, are common and may also represent the floor, although this remains to be confirmed. Because the “best controlled similar unit” appears to be units in the inventory and survey databases that are controlled by thermal oxidizers, thermal oxidation would also be the floor for new units. (Although the inventory database lists catalytic afterburners w/HX as a control device in use on drum reclaimer furnaces, we doubt that these control devices are actually in use, and they do not appear in the survey database.) Numerical emission standards for all Section 129 pollutants are required.

REGULATORY ALTERNATIVES ABOVE FLOOR: Since the floor control does not control acid gases, a spray dryer or wet scrubber may be considered, depending on emissions of acid gases. Similarly, Cd and Pb are not controlled in a thermal oxidizer, and this suggests considering specifying a fabric filter. In addition, sections of the Pollution Prevention *ad hoc* workgroup Good Combustion Practice guidelines may be applicable. Numerical emission standards for all Section 129 pollutants are required.

STATUS OF DATA COLLECTION AND ANALYSIS: Based on SURVEYV2.MDB, there appear to be no HAPs emission test data available for drum reclaimer furnaces. Subteam #4 is currently working with trade group representatives to further refine combustor description and population estimates and obtain existing emissions data on the other Section 129 pollutants.

ISSUES AND NEEDS: Subteam #4 wishes to express a concern on the paucity of emissions data for certain Section 129 pollutants.

OTHER COMMENTS: Recommendations for stack testing will be were submitted to the Coordinating Committee at its July 1998 meeting. A summary of control devices for drum reclaimer furnaces in the inventory and survey databases is presented below.

Air Pollution Control Devices for Drum Reclaimer Units listed in SURVEY2.MDB			
CODE	DESCRIPTION	Number	Percent
021	Direct Flame Afterburner	4	9%
022	Direct Flame Afterburner w/HX	1	2%
---	Units not listed	39	89%

Air Pollution Control Devices for Drum Reclaimer Units listed in ICCRV2.MDB			
CODE	DESCRIPTION	Number	Percent
000	None	8	18%
021	Direct Flame Afterburner	13	30%
020	Catalytic Afterburner w/HX	1	2%
---	Units not listed	11	50%

SUBCATEGORY NAME: Parts Reclaimer Burnoff Units

ASSIGNED CAA SECTION (ICWI OR OSWI): Section 129 (ICWI).

GROUPINGS WITHIN SUBCATEGORY:

Electrical winding reclaimer burnoff units
Non-PVC coated parts reclaimer burnoff units
PVC coated parts reclaimer burnoff units

POPULATION STATISTICS: ICCR Inventory database - 332 units. Subteam #4 estimates the national populations of the three groupings within the subcategory as follows:

Electrical winding reclaimer burnoff units ~300
Non-PVC coated parts reclaimer burnoff units ~1000
PVC coated parts reclaimer burnoff units ~50

MATERIALS COMBUSTED: This type of incinerator is used to reclaim metal parts for reuse in their current form. Coatings such as cured paint, plastisol, or varnish or unwanted parts such as plastic spacers or rubber grommets are burned off a wide variety of metal parts in these units. Plastisol coatings are comprised of polyvinyl chloride and phthalate plasticizer. Plastisol and paint both may contain heavy metal pigments. Metal parts fed to these primarily batch units include paint hooks/racks, electric motor armatures, transformer winding cores, and electroplating racks.

COMBUSTION DEVICE: Parts reclaimer burnoff units are typically small, batch, fossil fuel-fired units. The parts reclaimer burnoff units listed in the ICCR Inventory database list a range of heat inputs from 0.2 MMBtu/hr to 3.7 MMBtu/hr. They are often called burnoff ovens or pyrolysis units and often not recognized as “incinerators.” Operations consist of loading the cold burnoff oven with metal parts, igniting the thermal oxidizer, if present, and main burner (both usually natural gas-fired), and allowing the combustible coating or part to pyrolyze into an fragile ash-like material (often over a period of hours) which may be then mechanically removed or abrasive-blasted off the metal part. Because of the wide variety of parts recycled in these units, facility size varies widely, from small electric motor repair shops to large automobile assembly plants.

BASIS FOR SUBCATEGORY BOUNDS: These units are subcategorized on the basis of similar purpose -- recovering a metal part for reuse in its current form. This places them in Section 129 rather than in Section 112 with the scrap metal recovery units, which are excluded by Section 129(g)(1)(A). They are kept separate from drum reclaimer furnaces because they tend to be smaller batch units and do not have the potential for burning RCRA hazardous wastes. However, Subteam #4 expects that at least some Section 129 pollutants are emitted from units in this subcategory.

POLLUTANTS CONSIDERED FOR REGULATION: Subteam #4 believes that there is a potential for emissions of all Section 129 pollutants from parts reclaimer burnoff units. Review of SURVEYV2.MDB indicates the existence of HAPs emissions data for at least two electrical winding reclaimer burnoff units (ICCR Facility IDs - 34017W091 and 550570416). Subteam #4 possesses a data summary of an old stack test of a PVC coated rack reclaimer burnoff unit that indicates the presence of HCl and organic compounds in stack emissions. In addition, any metals present in coating pigments also have the potential to be emitted.

FLOOR LEVEL OF CONTROL: Based on both the inventory and survey databases, the floor for parts reclaimer burnoff units is thermal oxidation. Based on review of ICCRV2.MDB, at least 25% of parts reclaimer burnoff units are equipped with thermal oxidizers. This is consistent with the floor for drum reclaimer furnaces. Practices such as thermal oxidizer preheat and the removal of excess combustible materials (e.g., paper, rope, cloth, and visibly loose coatings/parts) are common and may also represent the floor, although this remains to be confirmed. Numerical emission standards for all Section 129 pollutants are required. Because the “best controlled similar unit” appears to be units in the inventory and survey databases that are controlled by thermal oxidizers, thermal oxidation would also be the floor for new units. For electrical winding and PVC units, the floor for new units may also include wet scrubbers, although this has yet to be confirmed. (The inventory and survey databases also list some other control techniques, such as low NOx burners and fabric filters, that are used sporadically in the industry and may represent the new unit floor for specific pollutants. However, a more detailed study of these devices is needed to determine their effectiveness on the range of units found in the parts reclaimer industry.)

REGULATORY ALTERNATIVES ABOVE FLOOR: The ICCR Inventory database lists a number of units controlled by a wet scrubber or a fabric filter in addition to a thermal oxidizer. The floor level of control (thermal oxidizer) does not control metals or acid gases, and control alternatives above the floor should examine scrubbers, spray dryers, and fabric filters. In addition, sections of the Pollution Prevention *ad hoc* workgroup good combustion practices (GCP) guidelines may be applicable. Numerical emission standards for all Section 129 pollutants are required.

STATUS OF DATA COLLECTION AND ANALYSIS: Based on Subteam #4 review of SURVEYV2.MDB, there appear to be at least two parts reclaimer burnoff units with HAPs emission data. These test reports are being obtained by EPA.

ISSUES AND NEEDS: Subteam #4 has recommended recommends Section 129 stack testing of two non-PVC coated parts reclaimers burnoff units and two PVC coated parts reclaimers burnoff units. Recommendations for stack testing were will be submitted to the Coordinating Committee at its July 1998 meeting. Subteam #4 also recommended

recommends an analysis of six cured coatings prior to processing in a parts reclaimer burnoff unit. These analyses have been incorporated into the Boiler Work Group's fuel/waste analysis program.

OTHER COMMENTS: ~~None.~~ A summary of control devices for drum reclaimer furnaces in the inventory and survey databases is presented below.

Air Pollution Control Devices for Parts Reclaimer Units listed in SURVEY2.MDB			
CODE	DESCRIPTION	Number	Percent
019	Catalytic Afterburner	1	<1%
021	Direct Flame Afterburner	42	13%
022	Direct Flame Afterburner w/HX	6	2%
025	Staged Combustion	1	<1%
076	Multiple Cyclone w/o Flyash ReInjection(?)	2	<1%
086	Water Curtain(?)	3	1%
101	High Efficiency Particulate Air Filter	1	<1%
212	Air to Fuel Ratio Control	2	<1%
021 & 021	Direct Flame Afterburner & Direct Flame Afterburner	1	<1%
021 & 025	Direct Flame Afterburner & Staged Combustion	3	1%
021 & 028	Direct Flame Afterburner & Steam Injection	1	<1%
022 & 022	DF A.B. w/HX & DF A.B. w/HX	2	<1%
029 & 212	Low Excess Air & Air to Fuel Ratio Control	1	<1%
206 & 212	Low NOx Burners & Air to Fuel Ratio Control (?)	2	<1%

021 & 028 & 025	DF A.B. & Steam Inject & Staged Combustion	1	<1%
024 & 206 & 212	Mod. Furnace & Low NOx Burners & Ato F Ratio(?)	2	<1%
---	Approximate units not listed	261	79%

Air Pollution Control Devices for Parts Reclaimer Units listed in ICCRV2.MDB			
CODE(S)	DESCRIPTION	Number	Percent
000	none	38	11%
002	Wet Scrubber - medium efficiency	1	<1%
003	Wet Scrubber - low efficiency	1	<1%
020	Catalytic Afterburner w/HX	2	<1%
021	Direct Flame Afterburner	66	20%
022	Direct Flame Afterburner w/HX	4	1%
024	Modified Furnace/Burner Design	1	<1%
078	Baffle	1	<1%
099	Other Devices	1	<1%
101	High Efficiency Particulate Air Filter	1	<1%
256	No code description available (unknown)	1	<1%
021 & 002	Direct Flame Afterburner & Wet Scrubber - ME	1	<1%
021 & 003	Direct Flame Afterburner & Wet Scrubber - LE	1	<1%
021 & 004	Direct Flame Afterburner & Gravity Collector	1	<1%
021 & 006	Direct Flame Afterburner & unknown	3	1%

021 & 016	Direct Flame Afterburner & Fabric Filter - HT	1	<1%
021 & 028	Direct Flame Afterburner & Steam Injection	1	<1%
021 & 033	Direct Flame Afterburner & unknown	1	<1%
021 & 099	Direct Flame Afterburner & Other Devices	3	1%
021 & 020 & 016	DF A.B. & Catalytic A.B. & Fabric Filter -HT	1	<1%
021 & 016 & 053	DF A.B. & Fabric Filter - HT & Venturi Scrubber	1	<1%
---	Approximate units not listed	201	61%

SUBCATEGORY NAME: Unclassified Metals-Related Incinerators

ASSIGNED CAA SECTION (ICWI OR OSWI): Sections 129 or 112.

GROUPINGS WITHIN SUBCATEGORY: Not applicable.

POPULATION STATISTICS: ICCR Inventory database - 212 units.

OTHER COMMENTS:

The unclassified subcategory represents units that have not been positively identified as drum reclaimer furnaces, parts reclaimer burnoff units, or scrap metal recovery units based on reviews of the inventory and survey databases. Survey responses have allowed identification of many previously unclassified units as parts reclaimer burnoff units, and it is likely that many currently unclassified units are probably parts reclaimer burnoff units.

Review of the current inventory of unclassified units indicates that many are “incinerators” associated with fabricated metal products industries such as appliance manufacturing, metal pipe coating, automotive parts manufacturing, electrical motor/transformer manufacturing, and pumps and compressors manufacturing. **A closer review of the survey database may reveal** ~~However, it is not clear~~ whether these incinerators are parts reclaimer burnoff units or plant trash incinerators.

There are entries for semiconductor and electronics manufacturers, as well as ammunition manufacturers. If the units are used to recover the metals content of the electronic equipment or the brass components of ammunition, these could be considered scrap metal recovery units and **would be** ~~are~~ excluded from Section 129.

A summary of control devices for unclassified metals-related units in the inventory and survey databases is presented below.

Air Pollution Control Devices for Unclassified Units listed in SURVEY2.MDB			
CODE	DESCRIPTION	Number	Percent
017	Fabric Filter - Medium Temperature	1	<1%
018	Fabric Filter - Low Temperature	6	3%
019	Catalytic Afterburner	1	<1%
021	Direct Flame Afterburner	19	9%
022	Direct Flame Afterburner w/HX	4	2%

025	Staged Combustion	1	<1%
076	Multiple Cyclone w/Flyash Reinjection	1	<1%
099	Other Devices	2	1%
001 & 021	Wet Scrubber HE & Direct Flame Afterburner	1	<1%
017 & 075	Fabric Filter MT & Single Cyclone	1	<1%
021 & 016	Direct Flame A.B. & Fabric Filter HT	1	<1%
021 & 017	Direct Flame A.B. & Fabric Filter MT	2	1%
022 & 050	Direct Flame A.B. w/HX & Packed Gas Absorp Col.	1	<1%
025 & 026	Staged Combustion & Flue Gas Recirc	1	<1%
099 & 200	Other Devices & Catalytic Oxidizer	2	1%
001 & 053 & 101	Wet Scrub HE & Venturi & HEPA Filter	2	1%
018 & 020 & 048	Fabric Filter LT & Cat A.B. w/HX & Active Carbon	1	<1%
021 & 028 & 212	DF A.B. & Steam Inject & Air to Fuel Ratio Control	1	<1%
---	units not listed	164	77%

Air Pollution Control Devices for Unclassified Units listed in ICCRV2.MDB			
CODE	DESCRIPTION	Number	Percent
000	none	40	19%
001	Wet Scrubber - High Efficiency	1	<1%
010	Electrostatic Precipitator - High Efficiency	2	1%
013	Gas Scrubber, General	1	<1%
016	Fabric Filter - High Temperature	2	1%

021	Direct Flame Afterburner	28	13%
025	Staged Combustion	1	<1%
070	Sodium-Alkali Scrubbing	2	1%
099	Other Devices	1	<1%
255	unknown	4	2%
021 & 008	Direct Flame A.B. & Centrifugal Collector - ME	1	<1%
021 & 016	Direct Flame A.B. & Fabric Filter - HT	1	<1%
022 & 009	DF A.B. w/HX & Centrifugal Collector - LE	1	<1%
---	Units not listed	127	60%

SUBCATEGORY NAME: Potential Section 129 Solid Mixed Feed Boilers

ASSIGNED CAA SECTION (ICWI OR OSWI): Section 129 Boilers (ICWI)

POPULATION STATISTICS: There are approximately 322 boilers identified in the EPA ICR Survey Version 2.0 database that may fall into this subcategory.

MATERIAL COMBUSTED: Various non-fossil Section 129 solid materials. These materials are generally co-fired with other non-fossil materials or fossil fuels.

COMBUSTION DEVICE: All types of boilers are used, including bubbling and circulating fluidized beds, cell-tubes, cyclone-fired, dutch ovens, fire tubes and water tubes, stokers, wet and dry bottom units, wall-fired and tangentially-fired and package and field-erected units.

BASIS FOR SUBCATEGORY BOUNDS: This subcategory includes all boilers that fire above a minimum percentage of Section 129 solid materials. These boilers may potentially have different controls than the section 129 liquid materials due to the difference in the physical state of fuels burned.

POLLUTANTS CONSIDERED FOR REGULATION: Section 129 Pollutants

FLOOR LEVEL OF CONTROL: Further analysis is being done.

Existing Sources. At this time, the preliminary MACT floor level of control is equivalent to the emission limit for boilers in this subcategory controlled with fabric filters (or an equivalent control technology) for controlling metallic HAPs, scrubbers (or an equivalent control technology) for reducing inorganic HAPs, and good combustion practices for reducing organic HAPs. These results are based on preliminary control techniques rankings for all boiler subcategories. Further analysis will look at combinations of controls.

New Sources. Same results as existing sources. In addition, the preliminary MACT floor for new sources for controlling mercury is scrubbers. These results are based on preliminary control techniques rankings for all boiler subcategories. Further analysis will look at combinations of controls.

REGULATORY ALTERNATIVES ABOVE THE FLOOR: No regulatory alternatives have been identified for controlling metals and inorganic HAPs. Alternatives above the MACT floor level of control for new and existing sources are carbon absorption for control of organic HAPs and mercury.

STATUS OF DATA COLLECTION AND ANALYSIS: An Information Collection Request (ICR) was sent to facilities with boilers burning potential 129 materials. Responses provided information on the control techniques being used on the boilers in this subcategory.

Emission test reports were gathered on boilers burning the materials combusted. However, only minimal data was obtained for some of the section 129 pollutants and HAPs. EPA has requested additional test reports from ICR respondents, but data gaps are expected to remain.

ISSUES AND NEEDS: Further testing of non-fossil materials and control devices is recommended in order to analyze emissions and set emission limits. A definition of non-hazardous solid waste is needed. The level of Section 129 materials that trigger regulation under Section 129 needs to be determined. The Boiler Work Group needs to further analyze the boilers and their control equipment in this subcategory to determine if more refined subcategories are needed.

OTHER COMMENTS: None.

SUBCATEGORY NAME: Potential Section 129 Liquid Mixed Feed Boilers

ASSIGNED CAA SECTION (ICWI OR OSWI): Section 129 Boilers (ICWI)

POPULATION STATISTICS: There are approximately 153 boilers identified in the EPA ICR Survey Version 2.0 database that may fall into this subcategory.

MATERIAL COMBUSTED: Various non-fossil Section 129 liquid materials. These materials are generally co-fired with other non-fossil materials or fossil fuels.

COMBUSTION DEVICE: All types of boilers are used, including bubbling fluidized beds, cell-tubes, cyclone-fired, dutch ovens, fire tubes and water tubes, stokers, wet and dry bottom units, wall-fired and tangentially-fired and package and field-erected units.

BASIS FOR SUBCATEGORY BOUNDS: This subcategory includes all boilers that fire above a minimum percentage of Section 129 liquid materials but no Section 129 solid materials. These boilers may potentially have different controls than the section 129 solid materials due to the difference in the physical state of fuels burned.

POLLUTANTS CONSIDERED FOR REGULATION: Section 129 Pollutants

FLOOR LEVEL OF CONTROL: Further analysis is being done.

Existing Sources. The preliminary MACT floor level of control is equivalent to the emission limit for boilers in this subcategory controlled with ESPs (or an equivalent technology) for reducing metallic HAPs, scrubbers (or an equivalent control technology) for reducing inorganic HAPs, and good combustion practices for reducing organic HAPs. These results are based on preliminary control techniques rankings for all boiler subcategories. Further analysis will look at combinations of controls.

New Sources. The preliminary MACT floor level of control is equivalent to the emission limit for boilers in this subcategory controlled with fabric filters (or an equivalent control technology) for reducing metallic HAPs, gas absorbers (or an equivalent control technology) for reducing inorganic HAPs, good combustion practices for reducing organic HAPs, and scrubbers for reducing mercury. These results are based on preliminary control techniques rankings for all boiler subcategories. Further analysis will look at combinations of controls.

REGULATORY ALTERNATIVES ABOVE THE FLOOR: Alternatives above the MACT floor level of control are emission limits for boilers controlled with fabric filters (or an equivalent control technology) for metals, and carbon adsorption for organic HAPs and mercury. No above the floor alternatives have been identified for inorganic HAPs.

STATUS OF DATA COLLECTION AND ANALYSIS: An Information Collection

Request (ICR) was sent to facilities with boilers burning potential 129 materials. Responses provided information on the control techniques being used on the boilers in this subcategory. Emission test reports were gathered on boilers burning the materials combusted. However, only minimal data was obtained for some of the Section 129 pollutants and HAPs. EPA has requested additional test reports from ICR respondents, but data gaps are expected to remain.

ISSUES AND NEEDS: Further testing of non-fossil materials and control devices is recommended in order to analyze emissions and set emission limits. A definition of non-hazardous solid waste is needed. The level of Section 129 materials that trigger regulation under Section 129 needs to be determined. The Boiler Work Group needs to further analyze the boilers and their control equipment in this subcategory to determine if more refined subcategories are needed.

OTHER COMMENTS: None.